

App. No. 09/843,597

Amendment under 37 CFR §1.111

**REMARKS**

Claims 39, 41-50, 64-66, 75, 81, 82, and 85-136 are pending and under consideration. Claims 39, 64, 75, and 81 are independent claims. Claims 1-38, 51-63, 67-74, 76-80, 83, and 84 drawn to non-elected inventions have been cancelled. Claims 39, 41, 50, 64-66, 75, and 81 have been amended, Claim 40 has been cancelled, and Claims 85-136 have been added. Reexamination and reconsideration of the application, as amended, are hereby respectfully requested.

***Claim Rejections***

Examiner has rejected Claim 40 under 35 USC §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter Applicant regards as the invention. Applicant respectfully submits that the rejection is obviated, since Claim 40 has been cancelled and replaced with new Claims 96-102, each of which recites only a single energy form.

Examiner has rejected Claims 39-50, 64-66, 75, 81, and 82 under 35 USC §103 as unpatentable over Babbitt et al (US 5812318) in view of Popovich (US 6323970). Applicant respectfully traverses the rejection, since it is believed that Claims 39, 41-50, 64-66, 75, 81, 82, and 85-136, as amended herein, patentably distinguish over Babbitt et al and Popovich.

With respect to Claims 39, 64, 75, and 81, each of these independent claims recites, as amended herein, that the hologram structure comprises a set of diffractive elements, each of which *individually* provides reflective imaging of at least a portion of an optical signal between the input optical port and the output optical port. This is disclosed in Fig. 4, for example, where each of diffractive elements 402 is individually contoured and positioned so as to individually image portions of an optical signal between optical ports 404 and 406. In the devices disclosed by Babbitt et al and Popovich, preferential routing of optical signals is only achieved through the collective effect of an entire grating or hologram, and not by individual elements thereof. There is no teaching, motivation, or suggestion in Babbitt et al or in Popovich of reflective imaging of optical signals by individual diffractive elements. Since all elements and limitations recited in Claim 39, 64, 75, or 81 are not disclosed in the combined teachings of Babbitt et al and Popovich, Applicant respectfully submits that the rejection under 35 USC §103 is improper, and respectfully requests its withdrawal.

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Regarding new Claim 95 (dependent on Claim 39), new Claim 114 (dependent on Claim 64), new Claim 129 (dependent on Claim 75), and new Claim 133 (dependent on Claim 81), each of these dependent claims recites that the holographic structure comprises a planar optical waveguide, substantially confining in one dimension optical signals propagating in two dimensions therein (disclosed in the specification at page 9 line 18 through page 10 line 12; also Figs. 3-13). Neither Babbitt et al nor Popovich discloses planar optical waveguides; devices disclosed by Babbitt et al or Popovich are transmissive or reflective gratings or holograms, with optical signals propagating with a substantial component *perpendicular* to the plane defined by the optical element. In contrast, an optical signal propagating within a planar waveguide, substantially confined in one dimension thereby, would have essentially no perpendicular component of its propagation, but would propagate only substantially *parallel* to the planar waveguide. Since all elements and limitations recited in Claims 95, 114, 129, and 133 are not disclosed by Babbitt et al and Popovich, and since there is no teaching, motivation, or suggestion in Babbitt et al or Popovich to include such elements and limitations, rejection under 35 USC §103 would be improper.

Regarding new Claims 97 and 99-101 (dependent on Claim 39), neither Babbitt et al nor Popovich discloses, teaches, motivates, or suggests use of thermal, acoustic, nuclear, or chemical energy for dynamically re-configuring a configurable programmed holographic structure. Since all elements and limitations recited in Claims 97 and 99-101 are not disclosed by Babbitt et al and Popovich, and since there is no teaching, motivation, or suggestion in Babbitt et al or Popovich to include such elements and limitations, rejection under 35 USC §103 would be improper.

Regarding new Claim 103 (dependent on Claim 39), new Claim 116 (dependent on Claim 64), new Claim 123 (dependent on Claim 75), and new Claim 135 (dependent on Claim 81), each of these dependent claims recites that the holographic structure is configured by introduction of energy through a conductive trace that is "positioned and contoured to substantially correspond to one of the diffractive elements". Neither Babbitt et al nor Popovich discloses, teaches, motivates, or suggests such positioning or contouring of conductive traces coupled to the holographic structure. Since all elements and limitations recited in Claims 103, 116, 123, and 135 are not disclosed by Babbitt et al and Popovich, and since there is no teaching, motivation, or suggestion in

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Babbitt et al or Popovich to include such elements and limitations, rejection under 35 USC §103 would be improper.

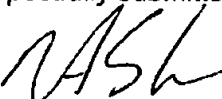
Regarding new Claim 104 (dependent on Claim 39), new Claim 117 (dependent on Claim 64), new Claim 124 (dependent on Claim 75), and new Claim 136 (dependent on Claim 81), each of these dependent claims recites the holographic structure is configured by introduction of energy through multiple conductive traces with independent control of subsets of the multiple traces. Neither Babbitt et al nor Popovich discloses, teaches, motivates, or suggests such independent control of subsets of multiple conductive traces. Since all elements and limitations recited in Claims 104, 117, 124, and 136 are not disclosed by Babbitt et al and Popovich, and since there is no teaching, motivation, or suggestion in Babbitt et al or Popovich to include such elements and limitations, rejection under 35 USC §103 would be improper.

In the specification and claims, the conjunction "or" is to be construed inclusively (e.g., "a dog or a cat" would be interpreted as "a dog, or a cat, or both"; Bryan A. Garner, Elements of Legal Style p. 103, 2nd ed. 2002), unless: i) it is explicitly stated otherwise, e.g., by use of "either...or", "only one of...", or similar language; or ii) two or more of the listed alternatives are mutually exclusive within the context of the claim, in which case "or" would encompass only those combinations involving non-mutually-exclusive alternatives.

### **Conclusion**

In view of the above, it is submitted that Claims 39, 41-50, 64-66, 75, 81, 82, and 85-136 are in condition for allowance. Allowance of Claims 39, 41-50, 64-66, 75, 81, 82, and 85-136 at an early date is earnestly solicited.

Respectfully submitted,



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